(a) what is the availability of solar energy in the country;

(b) the States where this energy is available for maximum duration and quantity-wise;

(c) what are the prospects of electricity generation from this source in Rajasthan;

(d) whether electricity generation centres based on this source have since been set up or are proposed to be set up in Rajasthan; and

(e) if so, by when and what are the places where such centres are to be set up together with their generating capacity?

THE MINISTER OF STATE OF THE MINISTRY OF PLANNING AND PROGRAMME IMPLEMENTATION AND MINISTER OF STATE IN THE MINISTRY OF NON-CONVENTIONAL ENERGY SOURCES (SHRI SUKH RAM): (a) The availability of solar energy in the country varies from place to place. The average daily solar radiation is between 4 and 7 Kwh per square meter depending upon location. In aggregate terms, the country receives solar energy equivalent to about 5, 000 trillion Kwh per year.

(b) The States in the Western part of the country receive the maximum solar radiation on an annual average basis. These include the States of Rajasthan and Gujarat.

(c) Although solar energy is abundantly available, the prospects of electricity generation from this source will depend upon the availability of technology that can convert solar energy into electricity in a cost effective manner. At present, electricity generation from solar energy is possible by adopting the solar thermal route or solar photovoltaic route. The initial capital costs of both these technologies are at present high. With improvement in technology and increased production of equipments, reduction in cost is expected and consequently the prospects of electricity generation from solar energy are expected to improve.

(d) and (e) A 10 KW solar photovotaic power plant has been installed at Nayagaon in District Jaipur. One 10 KW solar photovoltaic power plant in village Gopalpura, District Tonk, and two power plants of 10 KW and 5 KW in district Jaisalmer are proposed to be set up by the Rajasthan Energy Development Agency during the year 1992-93.

Development Non-Conventional Energy Sources in Orissa and Rajasthan

2388. SHRI RAM DAS AGARWAL: Will the PRIME MINISTER be pleased to state:

(a) whether Government have so far taken any decision to develop Non-Conventional Energy Sources particularly Solar Energy in Rajasthan and Orisa: and

(b) if so, the details thereof and if not the reasons therefor?

THE MINISTER OF STATE OF THE MINISTRY OF PLANNING AND PROGRAMME IMPLEMENTATION AND THE MINISTER OF STATE IN THE MINISTRY OF NON-CONVENTIONAL ENERGY SOURCES (SHRI SUKH RAM): (a) and (b) For the development of non-conventional energy sources, programmes of research, development, demonstration and dissemination of new and renewable energy systems & devices have been taken up in the country. These programmes are being implemented through the State Goevrnments, State Nodal Agencies, autonomous institutions and research organisations. Statement-A brings out status of achievements of installations of various types of non-conventional energy systems & devices in different parts of the country.

Number of solar thermal energy systems and solar photovoltaic systems & devices have been installed in the States of Rajasthan and Orissa Status of Installation of various types of solar energy systems in the two States is given at Statement 'B'

Statement "A"

Status of achievements of installation of various types of renewable energy systems and devices, supported by Ministry of Non-Conventional Energy Sources.

Sl.No	Programme	Units	Cumulative Achievement upto 31-3-92
1	National Project on Biogas Development (family size biogas plants)	Nos. in lakh	15·61
2	Community/Institutional Biogas Plants	No.s	820
3	National Programme on Improved Chulhas	Nos.in lakh	125·00
4	Solar Thermal Energy Systems	Coll. area in sq. mts. (In '000)	222
5	Solar Cookers	Nos. in '000	227
6	Villages provided with Photovoltaic street lights	Nos.	8100
7	Photovoltaic Water Pumps	Nos.	1191
8	Photovoltaic Power Units	KWP	750
9	Photovoltaic Community lights/TV and community facilities	Nos.	968
10	Photovoltaic Domestic lighting units	Nos.	9050
11	Wind Pumps	Nos.	2916
12	Wind Farms	MW.	40
13	Mini-Micro Hydro	MW	86·53
14	Urjagram Energy Surveys	Nos.	1557
15	Urjagram Projects	Nos.	155
16	Biomass Energy Plantations	Hectares	1710
17	Biomass Gasifiers	Nos.	900
18	Biomass Stirling Engines	Nos.	100

Statement "B"

Status of installation of Solar Energy Systems and Devices in the State of Rajasthan and Orissa, supported by Ministry of Non-Conventional Energy Sources.

Sl.No	Programme	Cumulative Achievement upto 31-3-92 (Numbers)	
		Rajasthan	Orissa
1	Industrial Solar Water Heating Systems	198	95
2	Domestic Solar Water Heating Systems	20	..
3	Solar Air Heating Systems	..	2
4	Solar Stills	251 m2	398 m2
5	Solar Cookers	25,389	769
6	Solar Photovoltaic Community Lighting/TV systems	110	61
7	Solar Photovoltaic Water Pumping Systems	86	50
8	Solar Photovoltaic Street Lighting Systems	6082	953
9	Solar Photovolatic Domestic Lighting Systems	..	86
10	Solar Photovoltaic Small Power Plants	1 (10·00 KWP)	4 (30.115 KWP)